Check List the journal of biodiversity data

NOTES ON GEOGRAPHIC DISTRIBUTION

Check List 11(4): 1709, 6 August 2015 doi: http://dx.doi.org/10.15560/11.4.1709
ISSN 1809-127X © 2015 Check List and Authors

Seven new records of Myrtaceae in Brazil

Marcos Sobral[1], **Maria Anália Duarte de Souza**[2], **Matheus Fortes Santos**[3] and **Thaís Elias de Almeida**[4]

1 Departamento de Ciências Naturais. Universidade Federal de São João del-Rei. Praça Dom Helvécio 74. 36301-160 - São João del-Rei, MG, Brazil
2 Pós-Graduação em Botânica. Instituto Nacional de Pesquisas da Amazônia. Av. André Araújo 2936. 69067-375 - Manaus, AM, Brazil
3 Pós-Graduação em Botânica. Instituto de Biociências, Rua do Matão, trav. 14, nº 321, Cidade Universitária. 05508-090 - São Paulo, SP, Brazil
4 Universidade Federal do Oeste do Pará. Av. Mendonça Furtado 2946. 68040-470 - Santárem, PA, Brazil
* Corresponding author. E-mail: marcos_sobral@hotmail.com

Abstract: *Calyptranthes conduplicata, C. vexata, Eugenia moritziana, E. pusilliflora, Marlierea suborbicularis, Myrcia crispa* and *M. subcordifolia* are new records for the Brazilian flora. All species except *Eugenia moritziana*, recorded from Espírito Santo state, are reported for the first time in Brazilian Amazonia.

Key words: *Calyptranthes, Eugenia, Marlierea, Myrcia*

Myrtaceae are represented in Brazil by about 1,000 native species (Sobral et al. 2015). Nevertheless, several regions, especially northern Brazil, are underestimated in their richness, which is due to the lack of collection efforts. Northern Brazil (i.e., the states of Acre, Amapá, Amazonas, Pará, Rondônia, Roraima and Tocantins) has an area of 3,856,570 km² (IBGE 2015) from where there are recorded about 668,000 plant collections (CRIA 2015). This would result in an average of 0.17 collection/km², considerably smaller than the Campbell sufficiency sampling index for tropical countries (one collection/km²; Campbell 1989) and even smaller than the average collection index for Brazil, which is about 0.6 collection/km² (Sobral and Stehmann 2009). Additionally, there is a scarcity of recent taxonomic studies on Myrtaceae of northern Brazil. Souza (1999) studied the Myrtaceae of the Reserva Florestal Adolpho Ducke in Manaus, Amazonas, and Rosário and collaborators provided occasional contributions to the knowledge of the family in the Amazonian biome (Rosário and Secco 2006; Rosário et al. 2005, 2013, 2014a, 2014b). Most identifications of Brazilian specimens must still rely on extra-Brazilian treatments such as the studies of McVaugh (1958, 1969) and Holst et al. (2002).

As a consequence of the scarcity of knowledge of the northern Brazilian flora, it may be expected that any detailed investigation of this region may bring to light geographical novelties such as those presented in this paper. On the other hand, the finding of *Eugenia moritziana* in the southeastern state of Espírito Santo is also indicative that even relatively well surveyed biomes, such as the Atlantic rainforest, are still in need of investigation.

Specimens were identified were using available literature (Karsten 1848–1849; McVaugh 1958, 1969; Holst 2002; Holst and Kawasaki 2008) and by comparison with type specimens or images of type specimens (see references under each species). Maps were plotted using QuantumGIS 2.6.1 (QGIS Development Team 2014); the specimens used for plotting distribution, except type specimens and Brazilian collections, were not seen by us; information regarding these specimens were based on the protologues or on-line databases (see Table 1). Herbaria are identified through their standard acronyms (Thiers 2015).

We present the first records of seven species of Myrtaceae not previously reported for Brazil; most of them are new findings from northern Brazil, except *Eugenia moritziana*, which was collected in the southeastern state of Espírito Santo.

1. ***Calyptranthes conduplicata*** B.Holst, Selbyana 23: 137. 2002. Type: Venezuela. Amazonas: Carretera San Carlos-Solano, G. Morillo et al. 3940 (holotype VEN; isotypes MICH, NY). Figures 1 and 8.

Calyptranthes conduplicata is a tree up to 6 m from upland forests ("terra firme"). It is easily recognizable through its relatively large, glabrous blades and long petioles if compared with other Amazonian species of the genus; the petioles are 13–15 × 2.0–2.2 mm and black when dry, and the blades narrowly elliptic to oblong, 150–170 × 55–73 mm, 2.3–2.8 times longer than wide, slightly discolorous when dry, with apex acuminate and base rounded or cuneate. Although this species was originally collected in Venezuela, it was later collected in Paraguay (Tropicos 2014a), making it probably a widespread but scarcely collected species.

Table 1. Data of specimens other than type material and Brazilian collections used for plotting distribution of the species.

Species	Specimen	Herbarium	Source
Calyptranthes conduplicata	Aymard 9037	SEL	Holst 2002
Calyptranthes conduplicata	Ortiz 1060	MO	Tropicos 2014a
Eugenia moritziana	Cuello 1173	MO	Tropicos 2014c
Eugenia moritziana	Cuello 1567	MO	Tropicos 2014c
Eugenia moritziana	González 1307	MO	Tropicos 2014c
Eugenia moritziana	Steyermark 116992	MO	Tropicos 2014c
Eugenia moritziana	Steyermark 118225	MO	Tropicos 2014c
Eugenia pusilliflora	Acevedo-Rodríguez 7633	MO	Kawasaki and Holst 2009
Eugenia pusilliflora	Castro 433	MO	Tropicos 2014d
Eugenia pusilliflora	Cerón 8667	MO	Tropicos 2014d
Eugenia pusilliflora	Cerón 9363	MO	Tropicos 2014d
Eugenia pusilliflora	Dik 1491	MO	Kawasaki and Holst 2009
Eugenia pusilliflora	Gudiño 8	MO	Kawasaki and Holst 2009
Eugenia pusilliflora	Neill 9465	MO	Kawasaki and Holst 2009
Eugenia pusilliflora	Palacios 10438	MO	Kawasaki and Holst 2009
Eugenia pusilliflora	Ruiz 1093	MO	Tropicos 2014d
Eugenia pusilliflora	Wisum 502	MO	Tropicos 2014d
Marlierea suborbicularis	Berry 5577	MO	Tropicos 2014e
Marlierea suborbicularis	Berry 5704	MO	Tropicos 2014e
Marlierea suborbicularis	Berry 5958	MO	Tropicos 2014e
Marlierea suborbicularis	Berry 6180	MO	Tropicos 2014e
Marlierea suborbicularis	Castillo 4235	MO	Tropicos 2014e
Marlierea suborbicularis	Castillo 7238	MO	Tropicos 2014e
Marlierea suborbicularis	Melgueiro 6	MO	Tropicos 2014e
Myrcia crispa	Maguire 30287	S	GBIF 2015
Myrcia crispa	Maguire 42271	ASU	COTRAM 2015
Myrcia crispa	Steyermark 109743	MO	Tropicos 2014f
Myrcia subcordifolia	Neill 14649	MO	Tropicos 2014g
Myrcia subcordifolia	Neill 16821	MO	Tropicos 2014g
Myrcia subcordifolia	Palacios 6723	MO	Holst and Kawasaki 2008
Myrcia subcordifolia	Rodríguez 2643	MO	Tropicos 2014g

Specimen examined: Brazil. Amazonas. Estrada Manaus to Porto Velho, km 40–30, 20 July 1972, M. Silva et al. 987 (INPA).

2. ***Calyptranthes vexata*** McVaugh, Fieldiana, Botany 29: 412. 1963. Type: Guyana; basin of Essequibo river, A.C. Smith 2723 (holotype NY; isotypes MO, US; for type image see Tropicos 2014b). Figures 2 and 9.

Calyptranthes vexata is a tree to 12 m from upland forests ("terra firme"), distinguished from other Amazonian species of the genus by its sessile flowers. Leaves are glabrous, with petioles 9–10 × 1.5–1.6 mm and blades narrowly elliptic, 95–130 × 40–50 mm, 2.4–3.2 times longer than wide. It was presently known only from the type collection, gathered in Guyana.

Specimen examined: Brazil. Amazonas: mun. Manaus, road Manaus to Caracaraí, km 26, 11 November 1966, G.T. Prance, B.S. Pena & J.F. Ramos 3074 (INPA).

3. ***Eugenia moritziana*** H.Karsten, Auswahl Gew. Venez.: 18. 1848–1849. Lectotype: Venezuela, Aragua, Tovar, Moritz 1628 (K, P; for type image see K 2015). Figures 3 and 8.

Eugenia moritziana is a tree 5–7 m collected in coastal Atlantic rainforests; it is recognizable by its markedly discolorous leaves, adaxially dull green, abaxially light golden yellow when young, turning grey or pale silver with age, with the venation scarcely or not visible due to the density of the indumentum. Leaves have petioles 5–7 × 1–1.6 mm and blades are elliptic to narrowly elliptic, 79–105 × 28–50 mm, 2.0–2.8 times longer than wide. It was presently known for Venezuela.

Specimens examined: Brazil. Espírito Santo: mun. Linhares, Reserva Natural Vale, 13 December 2006, G.S. Siqueira 281 (CVRD, HUFSJ); idem, 22 January 2008, D.A. Folli 5919 (CVRD, HUFSJ); mun. Sooretama, Reserva de Sooretama, 17 July 1969, D. Sucre 5710 (RB).

4. ***Eugenia pusilliflora*** M.L.Kawasaki & B.Holst, J. Bot. Res. Inst. Texas 3: 616. 2009. Type: Ecuador, Napo, Tena Cantón, C.E. Cerón et al. 8667 (holotype QCNE, isotypes F, MO, SEL; for type image see F 2015a). Figures 4 and 8.

Eugenia pusilliflora is a tree 3–10 m from upland forests ("terra firme"), recognizable through its relatively small and glabrous flowers with buds to 4 × 3 mm. Leaves are glabrous, petioles 4-5 x 0.9-1 mm and blades elliptic, 57–80 × 27–35 mm, 2.0–2.3 times longer than wide, markedly discolorous when dry. The specimens examined differ slightly from the protologue in the mostly glabrous ovaries, which are moderately pilose according to the

Figure 1. *Calyptranthes conduplicata* (Silva 987). Scale: 50 mm.

2015
1 cm
Copyright reservado
INPA INSTITUTO NACIONAL DE PESQUISAS DA AMAZÔNIA
Instituto Nacional de Pesquisas da Amazônia
HERBARIO
Reg. nº 18628
MANAUS - Amazonas
THE NEW YORK BOTANICAL GARDEN
INSTITUTO NACIONAL DE PESQUISAS DA AMAZÔNIA
Plants of Brazilian Amazônia
State of Amazônas
Manaus and vicinity
No. 3074
Calyptranthes sp.
Mc Vaugh, 1968-69
Road Manaus-Caracarai, km. 26. Forest on terra firme. Tree, 12 m. x 10 cm. diameter. Flowers white.
Myrtaceae
G. T. Prance, B. S. Pena, & J. F. Ramos November 11, 1966
Field work carried out in collaboration with the Instituto Agronômico do Norte, and financed in greater part by the National Science Foundation.
INPA INSTITUTO NACIONAL DE PESQUISAS DA AMAZÔNIA
Calyptranthes cf. polyanthia O. Berg
Det. A.C. Araujo Em: 9/2010
FOTO
FOX

Figure 2. *Calyptranthes vexata* (Prance 3074). Scale: 50 mm.

Figure 3. *Eugenia moritziana* (Siqueira 281). Scale: 50 mm.

2015
1 cm
INPA
INSTITUTO NACIONAL DE PESQUISAS DA AMAZÔNIA
Copyright reservado
F O X
HERBÁRIO
Reg. N° 153443
MANAUS - AMAZONAS
PROJETO FLORA AMAZÔNICA
Instituto Nacional de Pesquisas da Amazônia
The New York Botanical Garden
MYRT.
Mun. Guajará-Mirim, Rondônia. Estrada de Assentamento do INCRA a 65 km da BR-425, divisa com o Parque Indígena Lages. 10º40'S, 64º55'W. Mata de terra firme, solo arenoso.
Árvore de 10m x 25cm de diâm. Frutos jovens imaturos verdes.
C.A. Cid Ferreira 8788 10 ABR 87
Plantas coletadas em Rondônia, com participaçao de C.A.C. Ferreira, M. Nee, J. Boise, E.A. Lopes, J.G. de Oliveira, R.P. de Lima e J.A. Coelho.
Instituto Nacional de Pesquisas da Amazônia
Cid 8788
Eugenia pseudopsidium Jacq.
duplicata determinada por: Kawasaki, L., 1990
INSTITUTO NACIONAL DE PESQUISAS DA AMAZÔNIA (INPA)
Inpa Eugenia Sp.
Det. M.L.O. Kawasaki Em. 1989
FOTO

Figure 4. *Eugenia pusilliflora* (Rosas 256). Scale: 50 mm.

protologue. This species was known for Ecuador and Peru.

Specimens examined: Brazil. Acre: mun. Cruzeiro do Sul, próximo ao novo aeroporto, 11 February 1976, O.P. Monteiro & C. Damião 320 (INPA); idem, ramal 4 do projeto Santa Luzia (INCRA), 11 September 1985, A. Rosas Jr. et al. 256 (INPA). Amazonas: mun. Eirunepé, BR-364, cruzamento rio Gregório, 07°45′ S, 071°34′ W, 2 October 1987, M. Clara Ferreira & A.P. de Araújo 39 (HRB, INPA). Rondônia: Costa Marques, 12°15′ S, 064°16′ W, 1 April 1987, C.A.C. Ferreira 8765 (INPA). Guarajá-Mirim, 10°40′ S, 064°55′ W, 10 April 1987, C.A.C. Ferreira 8788 (INPA).

5. ***Marlierea suborbicularis*** McVaugh, Mem. New York Bot. Gard. 10: 88. 1958. Type: Venezuela, Amazonas, mun. Manoa, rio Guainia, B. Maguire et al. 36400 (holotype MICH, isotypes F, NY; for type image see MICH 2015a). Figures 5 and 9.

Marlierea suborbicularis is a shrub (height not recorded) from upland forests ("terra firme"), with typically widely ovate or nearly rounded glabrous blades 65–70 × 40–50 mm, 1.2–1.6 times longer than wide with scarcely visible petioles, these to 3 × 2 mm. It was presently known from Venezuela.

Specimen examined: Brazil. Roraima: Serra Surucucu, 2 February 1975, B.G.S. Ribeiro s.n. (IAN 145637).

6. ***Myrcia crispa*** McVaugh, Mem. New York Bot. Gard. 18: 130. 1969. Type: Venezuela, Amazonas, Serranía Parú, R.S. Cowan & J.J. Wurdack 31236 (holotype MICH; isotype NY; for type image see MICH 2015b). Figures 6 and 8.

Myrcia crispa is a tree to 8 m, with twigs, petioles and abaxial side of blades covered by rufescent trichomes; blades are markedly discolorous when dry, with the adaxial face dark brown, glabrous and shining, and the abaxial face rufescent, dull and densely pilose. Leaves have petioles 5–8 × 2–2.5 mm, and blades are elliptic to obovate, 63–70 × 30–33 mm, 1.9–2.4 times longer than wide. It was previously known only for Venezuela. Former records of *Myrcia crispa* from northeastern Bahia state, Brazil (Amorim 1025 and Davidse 11969, both SP; see images in CRIA 2015) are collections of *Myrcia eriocalyx* De Candolle, a distinct species belonging to the *Gomidesia* clade (see Lucas et al. 2011; *Myrcia crispa* belongs to the *Myrcia* clade) which occasionally bears a dark brown indumentum that may be confused with that of *M. crispa*. Nevertheless, blades are usually ovate or rounded in *M. eriocalyx*, while they are elliptic or obovate in *M. crispa*.

Specimen examined: Brazil. Amazonas. Uaupés, rio Negro, 7 March 1975, B.G.S. Ribeiro 863 (IAN).

7. ***Myrcia subcordifolia*** B.Holst & M.L.Kawasaki, J. Bot. Res. Inst. Texas 2: 303. 2008. Type: Ecuador, Zamora-Chinchipe: Nagaritza Cantón, 10 December 1990, W. Palacios 6723 (holotype QCNE, isotypes F, MO, SEL; for type image see F 2015b). Figures 7 and 9.

Myrcia subcordifolia is a tree to 16 m from floodable forests ("várzea"), recognizable through its leaves with petioles 2.5–4 × 2 mm mostly scarcely visible and obovate blades 60–110 × 34–64 mm, 1.7–1.8 times longer than wide, with widely rounded base, occasionally subcordate at the junction with the petioles. This species was previously known for Ecuador.

Specimen examined: Brazil. Amazonas: Coari, 04°00′ S, 065°00′ W, 16 December 2004, I.L. Amaral & L.M. Soares 2854 (INPA).

All species registered here except *Eugenia moritziana* were collected in the states of northern Brazil. These new findings are an eloquent demonstration of the scarcity of collections along the Amazonian biome (for numerical data see Introduction). On the other side, the occurrence of *E. moritziana* in the coastal rainforest of Espírito Santo, more than 3,000 km from the Venezuelan populations, although not exactly surprising if we consider the biogeographical connections of Amazonian and Atlantic biomes (e.g., Costa 2003), may exemplify the fact that even well surveyed areas are yet incompletely known in its floristic composition. Espírito Santo state has an area of 46,095 km² (IBGE 2015) and there are nearly 180,000 collections there (CRIA 2015), with an average of nearly four collections/km².

ACKNOWLEDGEMENTS

We acknowledge the collectors and the curators of the material examined, as well as the herbaria that allowed free access to their image databases. We are also grateful to two anonymous reviewers who suggested significant improvements to our paper. MS acknowledges Michael Hopkins, curator of herbarium INPA, for the opportunity of studying the Amazonian Myrtaceae collection at Manaus.

LITERATURE CITED

Campbell, D.G. 1989. The importance of floristic inventory in the tropics; pp. 5–30, in: Campbell, D.G. and D. Hammond (eds.) Floristic inventory of tropical countries: the status of plant systematics, collections, and vegetation, plus recommendations for the future. New York: New York Botanical Garden. 545 pp.

Costa, L. 2003. The historical bridge between the Amazon and the Atlantic forest in Brazil: a study of molecular phylogeography with small mammals. Journal of Biogeography 30(1): 71–86. doi: 10.1046/j.1365-2699.2003.00792.x

COTRAM (Cooperative Taxonomic Resource for American Myrtaceae). 2015. *Myrcia crispa* – specimen. Accessed at http://cotram.org/collections/individual/index.php?occid=1964878&clid=0, 4 January 2015.

CRIA (Centro de Referência em Informação Ambiental). 2015. *Specieslink*. Accessedd at http://inct.splink.org.br/, 26 December 2015.

F (Field Museum of Natural History). 2015a. *Eugenia pusilliflora* – image. Accessed at http://emuweb.fieldmuseum.org/web/pages/

Figure 5. *Marlierea suborbicularis* (Ribeiro 145637). Scale: 50 mm.

Figure 6. *Myrcia crispa* (Ribeiro 863).

Figure 7. *Myrcia subcordifolia* (Amaral 2854). Scale: 50 mm.

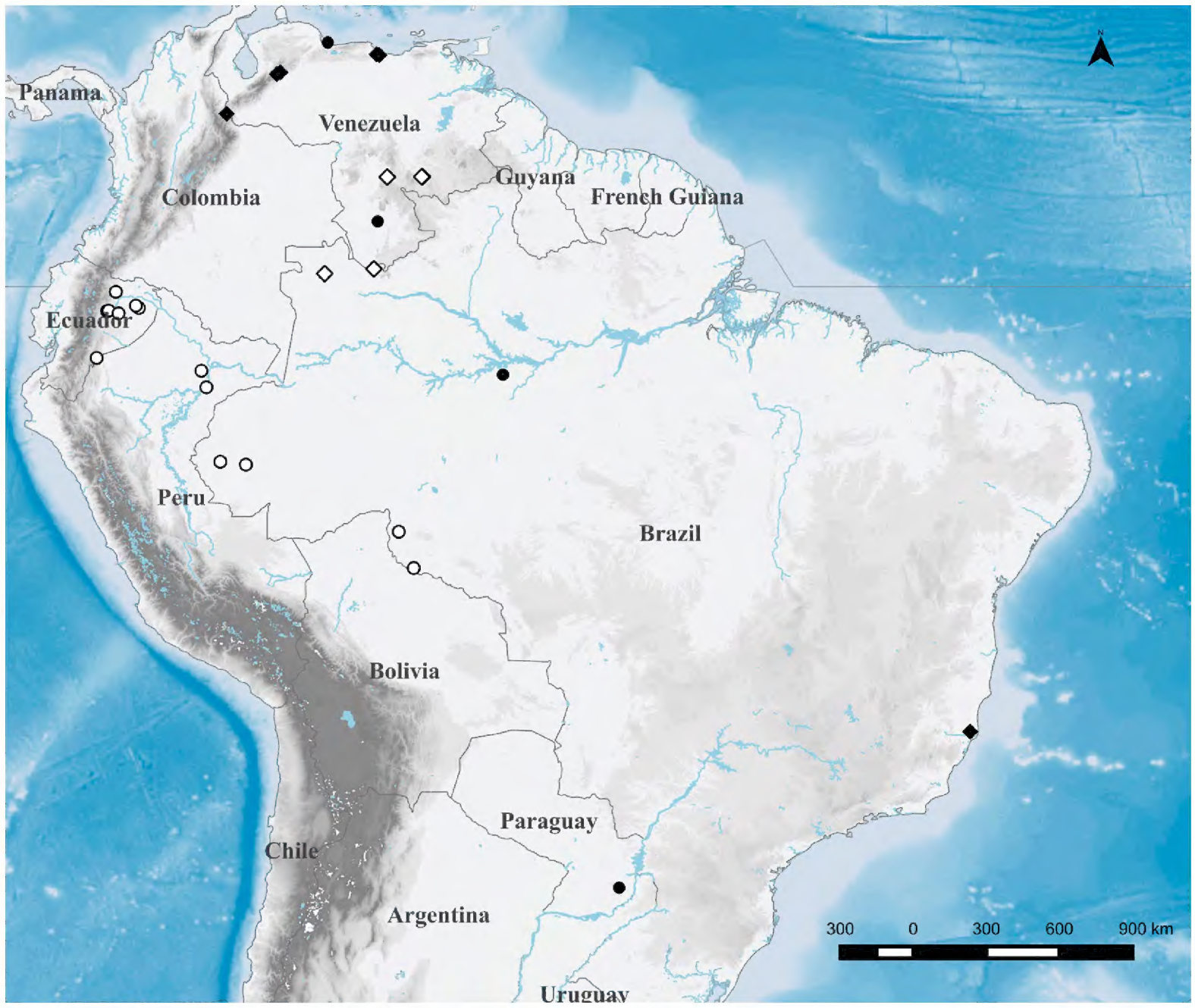

Figure 8. Distribution of *Calyptranthes conduplicata* (black circles), *Eugenia moritziana* (black diamonds), *Eugenia pusilliflora* (white circles) and *Myrcia crispa* (white diamonds). For data of the specimens mapped, see Table 1.

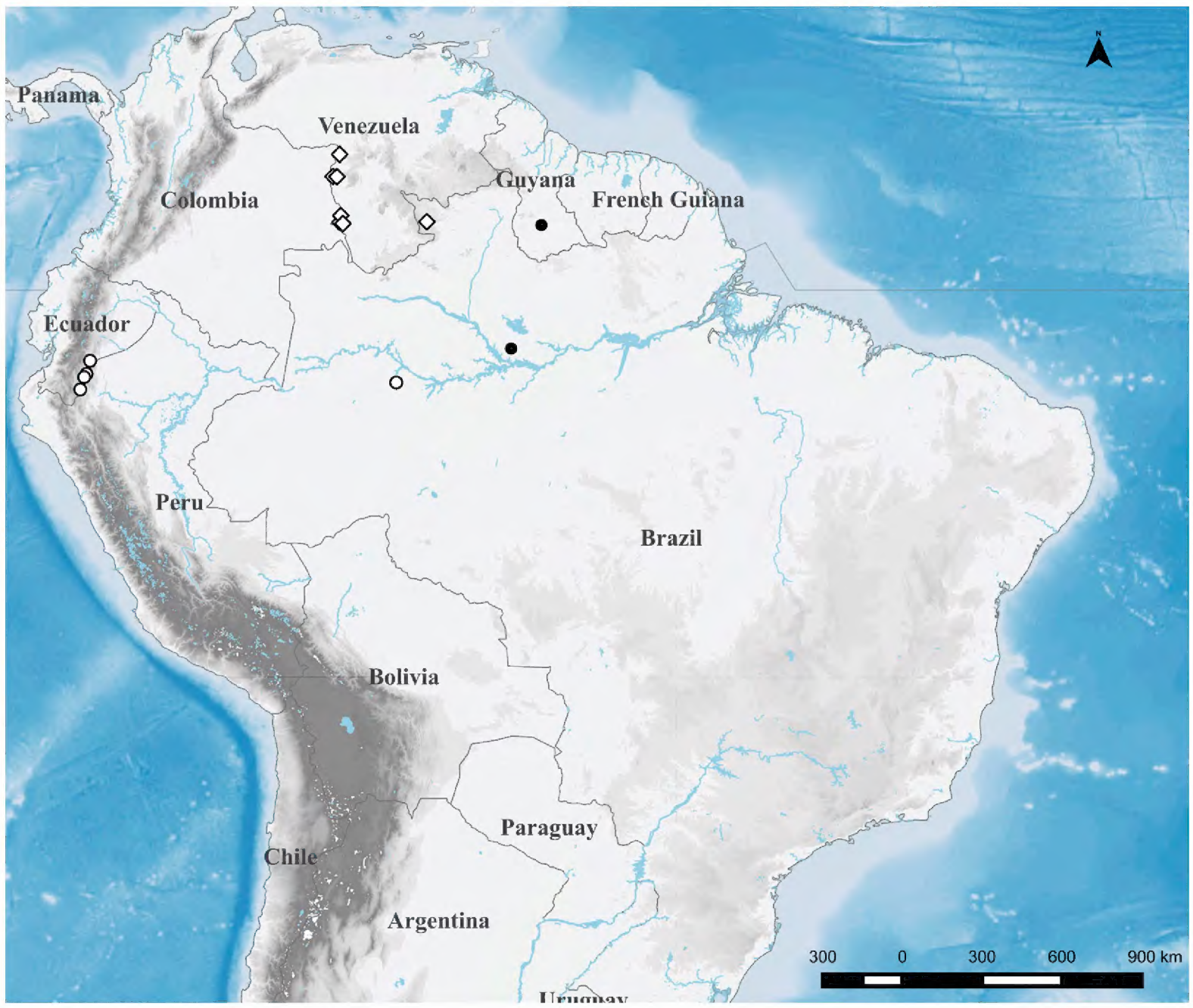

Figure 9. Distribution of *Calyptranthes vexata* (black circles), *Marlierea suborbicularis* (white diamonds) and *Myrcia subcordifolia* (white circles). For data of the specimens mapped, see Table 1.

common/imagedisplay.php?irn=136437&reftable=efmFnh&refirn=703669, 4 January 2015.

F (Field Museum of Natural History). 2015b. *Myrcia subcordifolia* – image. Accessed at http://emuweb.fieldmuseum.org/botany/vtypeDisplay.php?irn=355404&QueryPage=%2Fbotany%2Fsearch_vtype.php, 4 January 2015.

GBIF (Global Biodiversity Information Facility). 2015. *Myrcia crispa* – specimens. Accessed at http://data.gbif.org/occurrences/200319599/, 4 January 2015.

Holst, B.K. 2002. New species and notes on Myrtaceae from northern South America. Selbyana 23(2): 137–180.

Holst, B.K. and M.L. Kawasaki. 2008. New species of Myrtaceae from Ecuador. Journal of the Botanical Research Institute of Texas 2(1): 297–303.

Holst, B.K., L.R. Landrum and F. Grifo. 2002. Myrtaceae; pp. 1–99, in: P.E. Berry, K. Yatskievych and B.K. Holst (eds.). Flora of the Venezuelan Guayana, vol. 7. St. Louis, Missouri: MBG Press.

IBGE (Instituto Brasileiro de Geografia e Estatística). 2015. IBGEestados@. Accessed at http://www.ibge.gov.br/estadosat/, 22 June 2015.

K (Royal Botanic Gardens, Kew). 2015. *Eugenia moritziana* - image. Accessed at http://apps.kew.org/herbcat/getImage.do?imageBarcode=K000261057, 4 January 2015.

Karsten, H. 1848–1849. Auswahl neuer und schön blühender Gewächse Venezuelas. Berlin: Deckershen Geheimen Ober-Hofbuch. 40 pp.

Kawasaki, M.L. and B.K. Holst. 2009. New species of *Eugenia* (Myrtaceae) from Ecuador. Journal of the Botanical Research Institute of Texas 3(2): 609–618.

Lucas, E.J., K. Masumoto, S.A. Harris, E.M. Nic Lughadha, B. Bernardini and M.W. Chase. 2011. Phylogenetics, morphology and evolution of the large genus Myrcia s.l. (Myrtaceae). International Journal of Plant Science 172: 915–934.

McVaugh, R. 1958. Myrtaceae; pp. 61–91, in: Maguire, B. (ed.). Flora of the Guayana Highland, part V. Memoirs of the New York Botanical Garden 10(1).

McVaugh, R. 1969. Myrtaceae; pp. 57–286, inL Maguire, B. (ed.). Flora of the Guayana Highland part VIII. Memoirs of the New York Botanical Garden 18(1).

MICH (University of Michigan Herbarium). 2015a. *Marlierea suborbicularis* - image. Accessed at http://quod.lib.umich.edu/h/herb2ic?type=boolean&view=thumbnail&rgn1=ic_all&from=index&q1=marlierea+suborbicularis, 22 June 2015.

MICH (University of Michigan Herbarium). 2015b. *Myrcia crispa* - image. Accessed at http://quod.lib.umich.edu/h/herb2ic?type=boolean&view=thumbnail&rgn1=ic_all&from=index&q1=myrcia+crispa, 22 June 2015.

QGIS Development Team. 2014. QGIS Geographic Information System. Open Source Geospatial Foundation Project. Accessed at http://qgis.osgeo.org.

Rosário, A.S., R.S. Secco, D.D. Amaral, J.U.M. Santos and M.N.C. Bastos. 2005. Flórula Fanerogâmica das Restingas do Estado do Pará. Ilha de Algodoal e Maiandeua. 2. Myrtaceae A. L. de Jussieu. Boletim do Museu Paraense Emílio Goeldi, Série Ciências Naturais 1: 31–48.

Rosário, A.S. and R.S. Secco. 2006. Sinopse das espécies de *Marlierea* Cambess. (Myrtaceae) na Amazônia brasileira. Acta Amazonica 36: 37–52. doi: 10.1590/s0044-59672006000100006

Rosário, A.S. and R.S. Secco. 2013. Contribuição à taxonomia das Myrtaceae da Floresta Nacional de Caxiuanã; pp. 219–230, in: P.L.B. Lisboa (ed.). Caxiuanã: paraíso ainda preservado. IV ed. Belém: Museu Paraense Emílio Goeldi.

Rosário, A.S., J.F.A. Baumgratz and R.S. Secco. 2014a. Contribuição à taxonomia de Marlierea (Myrciinae; Myrtaceae) no Brasil. Rodriguésia 65: 245–250. doi: 10.1590/s2175-78602014000100017

Rosário, A.S., J.F.A. Baumgratz and R.S. Secco. 2014b. Taxonomic notes in *Calyptranthes* (Myrciinae; Myrtaceae) in the Brazilian Amazon. *Phytotaxa* 186: 158–165. doi: 10.11646/phytotaxa.186.3.4

Sobral, M. and J.R. Stehmann. 2009. An analysis of new angiosperm species discoveries in Brazil (1990-2006). Taxon 58(1): 227–232.

Sobral, M., C. Proença, M. Souza, F. Mazine and E. Lucas. 2014. Myrtaceae. In *Lista de Espécies da Flora do Brasil*. Jardim Botânico do Rio de Janeiro. Accessed at http://floradobrasil.jbrj.gov.br/jabot/floradobrasil/FB171, 26 December 2014.

Souza, M.A.D. 1999. Myrtaceae; pp. 417–436, in: Ribeiro, J. E.L. S., M.J.G. Hopkins, A. Vicentini, C.A. Sothers, M.A. Costa, J.M. Brito, M.A.D. Souza, L.H.P. Martins, L.G. Lohmann, M.R. Mesquita, L. Procópio, P.A.C.L. Assunção, E.P. Costa and C.F. Silva (eds.). Flora da Reserva Ducke: Guia de identificação das plantas vasculares de uma floresta de terra firme na Amazônia Central. Beijing: Midas Printing.

Thiers, B. 2015. Index Herbariorum: a global directory of public herbaria and associated staff. Accessible at http://sweetgum.nybg.org/ih/, 22 June 2015.

TROPICOS. 2014a. *Calyptranthes conduplicata* – specimen. Accessed at http://tropicos.org/Name/50229707?tab=specimens, 26 December 2014.

TROPICOS. 2014b. *Calyptranthes vexata* – image. Accessed at http://tropicos.org/Image/58624, 26 December 2014.

TROPICOS. 2014c. *Eugenia moritziana* – specimens. Accessed at http://tropicos.org/Name/22100673?tab=specimens, 26 December 2014.

TROPICOS. 2014d. *Eugenia pusilliflora* – specimens. Accessed at http://tropicos.org/Name/100353206?tab=specimens, 26 December 2014.

TROPICOS. 2014e. *Marlierea suborbicularis* – specimens. Accessed at http://tropicos.org/Name/22104251?tab=specimens, 26 December 2014.

TROPICOS. 2014f. *Myrcia crispa* – specimen. Accessed at http://tropicos.org/Name/22104328?tab=specimens, 26 December 2014.

TROPICOS 2014g. *Myrcia subcordifolia* – specimens. Accessed at http://tropicos.org/Name/50327299?tab=specimens, 26 December 2014.

Authors' contribution statement: MS wrote the text; MS and MADS identified *Calyptranthes conduplicata, C. vexata, Eugenia moritziana, E. pusilliflora* and *Myrcia subcordifolia*; MFS identified *M. suborbicularis* and *Myrcia crispa*; TEA organized the collection data and prepared the distribution maps.

Received: 3 November 2014
Accepted: 2 July 2015
Academic editor: Gustavo de Miranda